

Chapter 1

INTRODUCTION

BACKGROUND

The Lower East Coast (LEC) Planning Area is one of four regional planning areas in the South Florida Water Management District (District, SFWMD). The planning area covers approximately 1,200 square miles and includes essentially all of Miami-Dade, Broward, and Palm Beach counties, most of Monroe County, and the eastern portion of Hendry and Count (**Figure 1**). Land use within the region ranges from urban in the east to undeveloped natural landscapes in the west, with some areas in between having intense agricultural use. In the future, urban land use is expected to intensify and increase spatially and agricultural land use is expected to decline. The ability to provide more water to the LEC planning area in the future also depends on activities in other areas of the District that depend on Lake Okeechobee for water supply, such as the Caloosahatchee and St. Lucie river basins.

The planning area faces many challenges to provide adequate water supply to meet growing urban demands, changing agricultural demands, and needs of the environment through 2020. To some extent, these trends may offset each other in some basins and service areas. Nevertheless, overall water demand is expected to increase (**Table 1**). The cost of implementing the options necessary to meet the projected increases in demand is substantial, but these costs will be spread over a number of years and will be funded from various local, regional, state, and federal sources.

Table 1. Current and Projected Water Demands for each Water Use Category by County within the LEC Planning Area.

County	1995 Average Annual Demand (BGY) ^a				2020 Average Annual Demand (BGY)			
	PWS/DSS	Recreational	Commercial and Industrial	Agricultural	PWS/DSS	Recreational	Commercial and Industrial	Agricultural
Palm Beach	76.9	24.0	10.9	256.6	117.3	35.8	12.2	225.3
Broward	83.0	21.9	1.3	3.2	116.6	27.6	1.8	2.6
Miami-Dade	145.4	5.1	10.6	39.9	230.3	6.9	13.3	41.7
Monroe	0.2	0.8	0.03	0	0.2	0.8	0.03	0
Eastern Hendry	0.1	0	0	85.3	0.2	0	0	87.0
Total for the LEC Planning Area	305.6	51.8	22.9	385.0	464.5	71.1	27.3	356.4

a. BGY is Billions of Gallons per Year

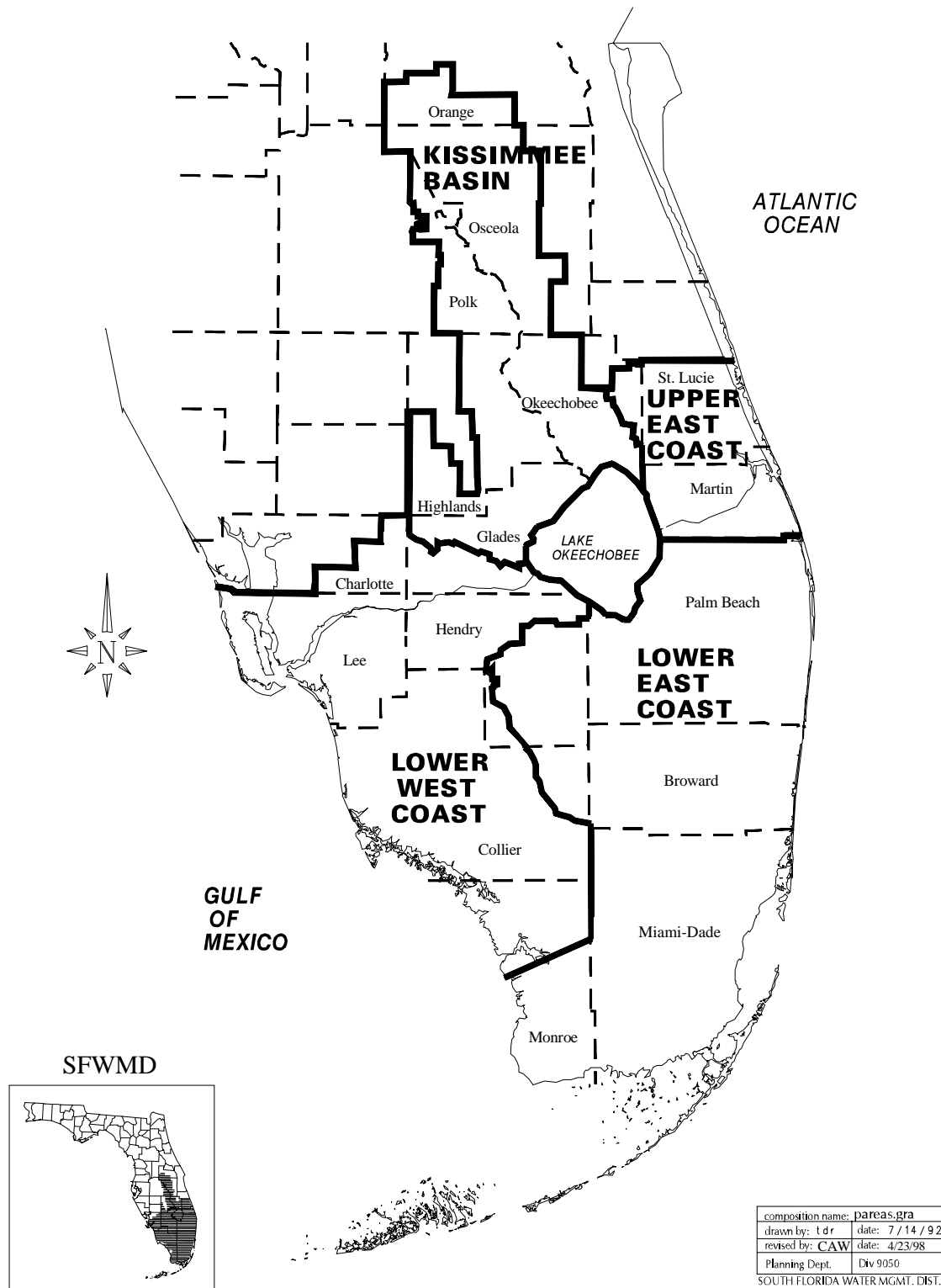


Figure 1. Water Supply Planning Areas within the SFWMD

This plan builds on analyses described in previous documents, including the *LEC Working Document* (SFWMD, 1993), the *Interim Plan for LEC Regional Water Supply* (SFWMD, 1998b), and the *Central and Southern Florida Project Comprehensive Review Study Final Feasibility Report and Programmatic Environmental Impact Statement* (USACE, 1999), and ongoing efforts such as the Comprehensive Everglades Restoration Plan (CERP). The CERP is being developed by the District, the United States Army Corps of Engineers (USACE), and other agencies to refine and implement the recommendations from the Central and Southern Florida Project (C&SF Project) Comprehensive Review Study (Restudy). The time frame for this plan is from the present (1995 base case conditions) to the future (year 2020). The modeling analysis for this plan originally used population, agricultural production, and water use projections through the year 2010, based on data provided from local governments. In order to comply with statutory changes to Chapter 373 F.S. that were made in 1997, these projections were reviewed and updated projections for 2020.

The District has established a planning goal to meet regional water needs, consistent with Florida statutes, which is to ensure that sufficient water is available to avoid water shortages during a 1-in-10 year drought condition. This plan toward achieve that goal. Even though enough water is available to meet demands on a regional scale, local conditions and circumstances may make it impossible or impractical to deliver regional water to particular individual supply systems. To address this issue, this plan presents regional water resource development projects, as well as a menu of strategies and local options that are available for more localized water supply development projects.

OVERVIEW

The *LEC Regional Water Supply Plan* was developed to include the areas in South Florida shown in **Figure 2**, covering all or part of ten of the 16 counties in the SFWMD. Documentation of the plan includes the final (this document) and appendices. This chapter, Chapter 1, provides an introduction that emphasizes the purpose and general goals of the *LEC Regional Water Supply Plan*. Chapter 2 gives an overview of the LEC water supply planning process. Chapter 3 describes the LEC Planning Area boundaries and major features, the primary and secondary water management systems, and the various basins and service areas. Chapter 3 also includes a description of the areas within the LEC where Minimum Flows and Levels (MFLs) have been proposed, pursuant to provisions in Chapter 373, F.S. Chapter 4 present the findings of the *LEC Regional Water Supply Plan* in terms of the performance of the regional and subregional water supply systems under present and future conditions with various water management features in place. Chapter 4 focuses on use of the regional models to evaluate current (1995) and future (2020) conditions without the major features proposed in the Restudy and future conditions with the major features proposed in the Restudy in place. Chapter describes performance of the regional and subregional water supply systems with various combinations of water supply options in place. Chapter 6 presents the recommendations, based on all evaluations conducted as part of the LEC planning process.

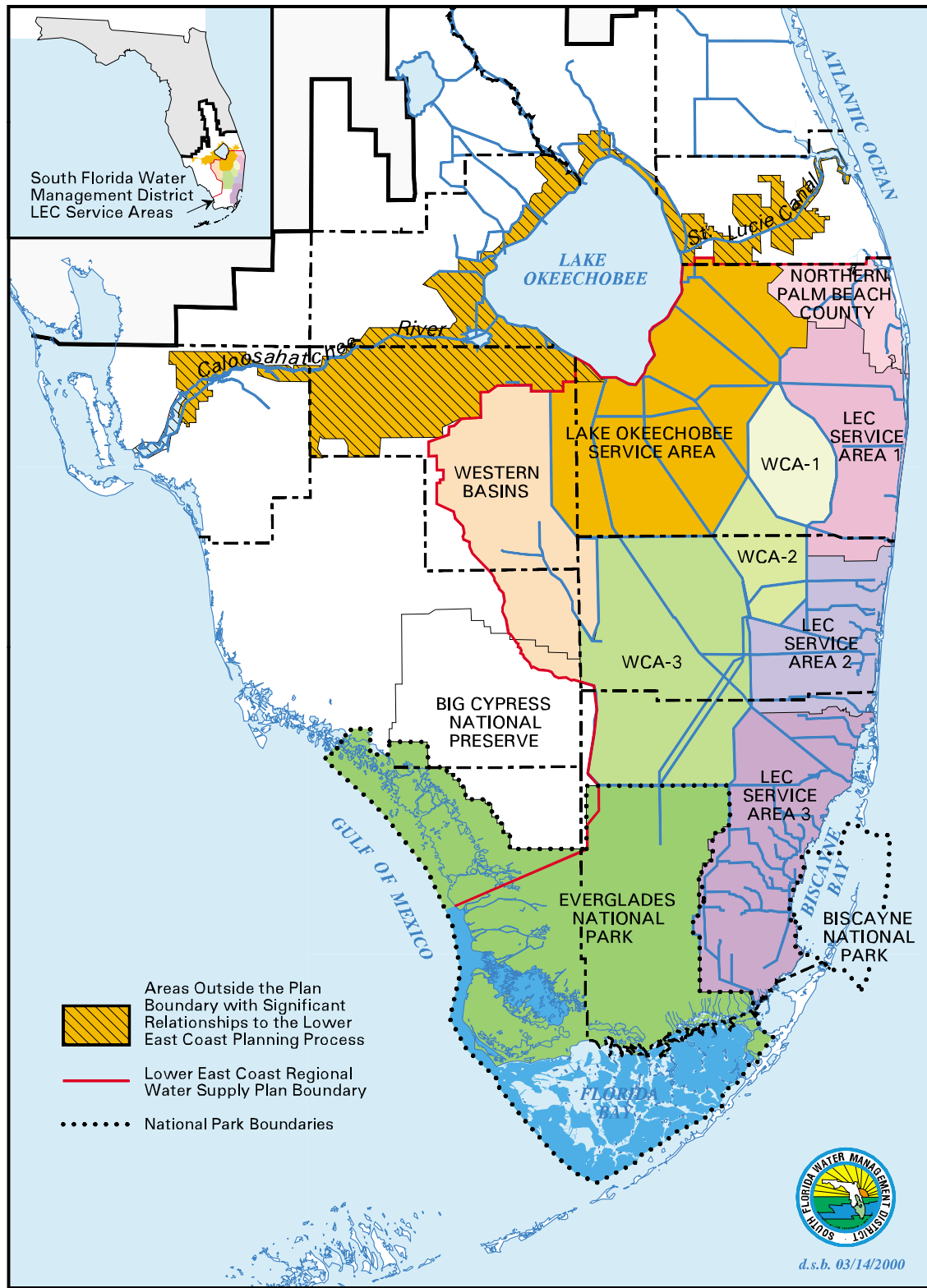


Figure 2. Major Features of the Lower East Coast Planning Area.

Appendices to the *LEC Regional Water Supply Plan* document include the legal statutes pertaining to the water supply plans (Appendix A), water demand analyses and projections (Appendix B), descriptions of water resource development (Appendix C), performance measures and indicators (Appendix D), hydrologic modeling tools (Appendices E and F), engineering designs and cost estimates (Appendix G), results model runs (Appendices H), documentation for the establishment of MFLs (Appendix J).

LEGAL BASIS

The *LEC Regional Water Supply Plan* provides strategies that are cost-effective, can be implemented, and assure that adequate water is available to meet future urban and agricultural, and natural system demands within the planning area through the year 2020. In accordance with recent changes to Ch 373, F.S., a combination of water resource and water supply development projects is proposed. The plan has been evaluated to determine how well the proposed facilities and operational changes meet water demands during a 1-in-10 year drought condition, while protecting the natural system from harm.

Currently, the regional water supply system meets the urban and agricultural needs fairly well. However, large portions of the Everglades and important estuary systems do not receive adequate quantities, timing, or distribution of water. Meeting the water supply needs for restoration of the environment is explicitly recognized as a responsibility of equal importance to meeting urban and agriculture demands and is specifically addressed in the Restudy and the subsequent CERP. Although this LEC Plan is not intended to achieve full restoration, appropriate attention has been given to improving hydropatterns within natural systems, particularly within the Everglades ecosystem. Furthermore, the plan incorporates proposed MFLs for Lake Okeechobee, the Everglades, and the Biscayne aquifer and outlines recovery and prevention strategies, where appropriate, to ensure that minimum water levels, and the durations and frequency of wetland flooding are achieved and maintained.

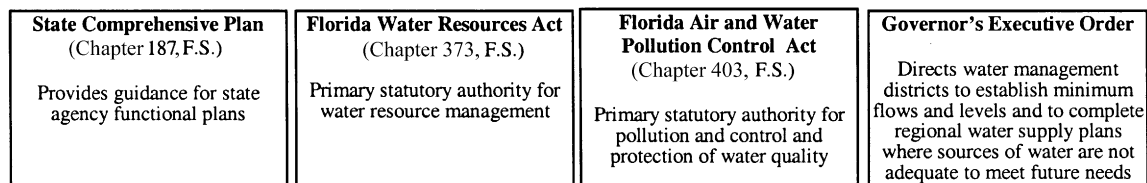
All of the policies developed for the LEC Regional Water Supply Plan Advisory Committee are governed by the general regional water supply planning requirements and policies as stated in the Florida Water Resources Act, Chapter 373, F.S. The purpose and scope of this plan are based on a hierarchy that progresses from law to more specific policy direction, and expressed District goals and objectives.

Regional Water Supply Plan Legal Requirements and Implementing Policies

Chapter 373 Planning Framework

Florida law provides several layers of legal requirements and policy direction to water management districts that impact regional water supply plan development. The relationship among three primary levels of legal and policy direction that affect regional water supply planning is shown in **Figure 3**.

Enabling Legislation



Implementation of Authority

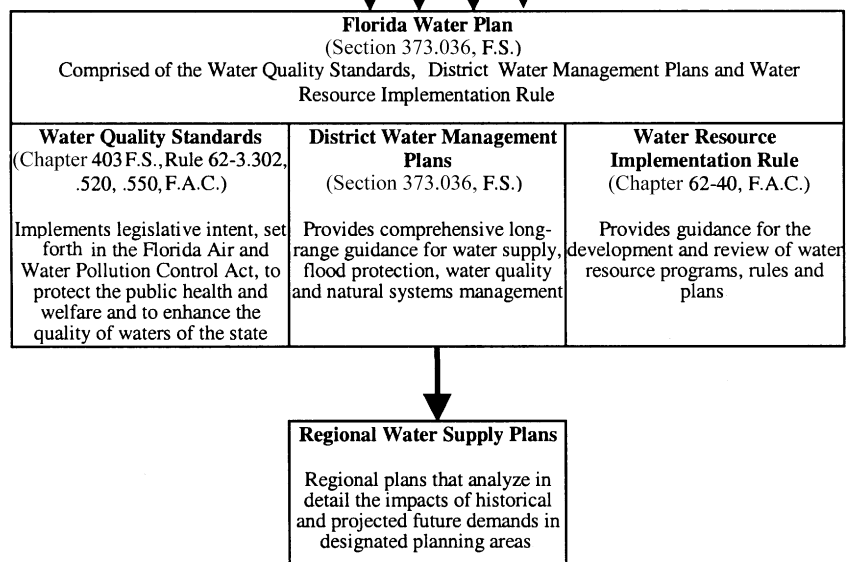


Figure 3. Legal Framework for the *Lower East Coast Regional Water Supply Plan*.

The State Water Policy (Chapter 62-40, F.A.C.), Chapter 373, F.S., the State Comprehensive Plan (Chapter 187, F.S.), the Florida Air and Water Pollution Control Act (Chapter 403, F.S.), and delegation of authority from Florida Department of Environmental Protection (FDEP) provide overall directives and policies that guide water management district water supply planning efforts. The State Water Policy stems from the requirements in Chapter 373, F.S., (principally 373.036 and 373.039). In addition, new legislative directives were monitored throughout the development of this plan, keeping it current and consistent with the 1996 Governor's Executive Order (96-297) and the 1997 legislative water supply amendments to Chapter 373, F.S. The *LEC Regional Water Supply Plan* was developed by the SFWMD based on guidelines developed in the *Regional Water Supply Assessment* (SFWMD, 1998e) and to fulfill commitments made in the approved *District Water Management Plan* (SFWMD, 2000a).

Key Direction for Regional Water Supply Plan Development

Within the three levels (enabling legislation, implementation of authority, and plan development) there are three key provisions discussed below. They are 1) overall Chapter 373, "Florida Water Resources Act" requirements; 2) district water management plan

policies, goals, and objectives; and 3) regional water supply plan policies, goals, and objectives. These policies and legal requirements must be taken as a whole when balancing the often competing missions of the District.

Overall Chapter 373 Policies

Section 373.016, F.S. contains policy direction to the water management districts in implementing all of the programs authorized by the law, including the development of regional water supply plans. It declares that the waters in the state are among its basic resources and they have not been conserved or fully controlled so as to realize their full beneficial use. It directs the FDEP and the District to take into account cumulative impacts on water resources and manage those resources in a manner to ensure their sustainability. The section then lists detailed policies which must be applied as a whole:

- Provide for the management of water and related land resources
- Promote the conservation, replenishment, recapture, enhancement, development, and proper utilization of surface and ground water
- Develop and regulate dams, impoundments, reservoirs, and other works
- Provide water storage for beneficial purposes
- Promote the availability of sufficient water for all existing and future reasonable-beneficial uses and natural systems
- Prevent damage from floods, soil erosion, and excessive drainage
- Minimize degradation of water resources caused by the discharge of storm water
- Preserve natural resources, fish, and wildlife
- Promote the public policy set forth in Section 403.021
- Promote recreational development, protect public lands, and assist in maintaining the navigability of rivers and harbors
- Otherwise promote the health, safety, and general welfare of the people of Florida

District Water Management Plans Policies, Goals and Objectives

General Direction

Pursuant to Section 373.036, F.S., each water management district must develop an overall planning document for all of the programs implemented under Chapter 373. The district water management plans provides another layer of policy direction for the development of regional water supply plans. District water management plans are to be formulated with consideration to the following:

- Attainment of maximum reasonable-beneficial use of water resources
- Maximum economic development of water resources consistent with other uses
- Management of water resources for such purposes as environmental protection, drainage, flood control, and water storage
- Quantity of water available for application to a reasonable-beneficial use
- Prevention of wasteful, uneconomical, impractical, or unreasonable uses of water resources
- Presently exercised domestic use and permit rights
- Preservation and enhancement of the water quality of the state
- State water resources policies expressed by Section 373.036, F.S.

The *District Water Management Plan* represents the District's overall strategy for future planning and implementation activities and provides a comprehensive examination of a myriad of issues related to water supply, flood protection, water quality, and natural systems management in South Florida. This plan also establishes schedules for future District planning activities, including the *LEC Regional Water Supply Plan*. The *District Water Management Plan* was published first in April 1995 (SFWMD, 1995c). Annual progress reports were published over the next four years (SFWMD, 1996a, 1997, 1998a, 1999). In 2000, the five-year update of the *District Water Management Plan* will be published, and will reference the *LEC Regional Water Supply Plan*.

Goals and Objectives

The *District Water Management Plan* sets forth the District created goals and objectives for water supply, which apply to development of regional water supply plans. The *District Water Management Plan* contains the following District water supply goals:

- Increase available water supply
- Promote the use of alternative water supply sources and conservation
- Protect the quality of source water from degradation and natural systems from significant harm, which could result from water use

The *District Water Management Plan* also contains the following water supply objectives:

- Increase available water supplies and maximize overall water use efficiency to meet identified existing and future needs
- Prevent contamination of water supply sources.

These goals and objectives are read in concert with the Chapter 373 policies discussed above.

Districtwide Water Supply Assessment

Each District must also produce a districtwide water supply assessment which identifies areas where development of regional water supply plans is required. Section 373.036, F.S., requires the districtwide water supply assessment to include an analysis of the following:

- Existing legal uses, reasonably anticipated future needs, and existing and reasonably anticipated sources of water and conservation efforts
- Whether existing and reasonably anticipated sources of water and conservation efforts are adequate to supply water for all existing legal uses and reasonably anticipated future needs and to sustain the water resources and related natural systems

The SFWMD *Districtwide Water Supply Assessment* was completed in 1998 (SFWMD, 1998c). It recommends to prepare water supply plans for four regions within the SFWMD that are anticipated to have the potential of demand outstripping available supply by 2020. The assessment identified demands for the following water use categories:

- Public Water Supply
- Domestic Self-Supplied (and small public supply systems)
- Commercial/Industrial Self-Supplied
- Recreational Self-Supplied
- Thermoelectric Power Generation Self-Supplied
- Agricultural Self-Supplied

Demand projections for 2020 contained within the *Districtwide Water Supply Assessment* include demand levels associated with average rainfall conditions, as well as demands that would be anticipated during a drought that could be expected to occur once in every ten years (as required by Section 373.036, F.S.). The water resource and demand analyses presented in the *District Water Supply Assessment* will be refined every five years as part of each region's water supply planning process. Environmental demands are not quantified in the *District Water Supply Assessment*. These needs are addressed in the water supply planning process through the incorporation of restoration goals and targets, MFLs, performance measures, reservations of water, and resource protection criteria.

The *District Water Supply Assessment* provides utility specific demands for 1995 and projections for 2020 for each Public Water Supply (PWS) utility in the SFWMD with projected pumpage of 0.5 million gallons per day (MGD) or greater in 2020. Source locations for each of these utilities are also provided. The *District Water Supply*

Assessment also includes descriptions of agricultural, commercial/industrial, and recreational self-supplied uses; surface water and ground water resources; and the availability and limits of water resources in each of the District's four regions.

Regional Water Supply Plans

The District has committed to preparing water supply plans for each of its four planning regions, which cumulatively cover the entire District. Regional water supply plans provide more detailed, region-specific information than the *District Water Supply Assessment*. Water supply plans are based upon data that are related to the specific water needs, sources, and environmental features of the regional planning areas, and are updated every five years. Area-specific goals and objectives were developed for the *LEC Regional Water Supply Plan* during the water supply planning process.

The 1998 *Districtwide Water Supply Assessment* (SFWMD, 1998c) affirmed that commitment. Water supply plans for the planning regions have been sequenced based on the history of their water shortage problems. The water supply plan for the Lower West Coast Planning Area was the first to be initiated, followed by the LEC, Upper East Coast, and finally the Kissimmee Basin. The District's water supply planning status for the four regions is as follows:

- The *Interim Plan for Lower East Coast Regional Water Supply* was completed in 1998 (SFWMD, 1998b). This plan described various options that were under investigation, provided preliminary recommendations, and laid out the process for completing the regional plan. The analyses in that document were subsequently expanded to produce the present document.
- The *Lower West Coast Water Supply Plan* was completed in 1994 (SFWMD, 1994), and was updated in 1999-2000. This updated plan was approved by the Governing Board in April 2000 (SFWMD, 2000b).
- The *Upper East Coast Water Supply Plan* was completed in 1998 (SFWMD, 1998d), and is currently being implemented.
- The *Kissimmee Basin Water Supply Plan Background Document and Appendices* were completed in 1996 (SFWMD, 1996b), and the water supply plan for this region was developed in 1999-2000. This plan was approved by the Governing Board in April 2000 (SFWMD, 2000c).

Statutory Requirements for Regional Water Supply Plans

Section 373.0361, F.S., requires that each regional water supply plan be based on at least a 20-year planning period and include water supply and water resource development components, a funding strategy for water resource development projects, MFLs established within the planning region, an MFL recovery and prevention strategy, and technical data and information supporting the plan.

The water supply development component must include the a quantification of the water supply needs for all existing and projected future uses within the planning horizon with a level-of-certainty planning goal for meeting needs during a 1-in-10 year drought event. It must also include a list of water source options for water supply development, including traditional and alternative sources, from which local government, government owned and privately owned utilities, self-suppliers, and others may choose. For each option, the amount of water available and the cost of the project must be estimated and sources of funding identified.

The water resource development component must include a list of water resource development projects that support water supply development. For each water resource development project the following must be provided: an estimate of the amount of water to become available through the project; the timetable for implementing or constructing the project; the estimated costs for implementing, operating, and maintaining the project; sources of funding; who will implement the project; and how it will be implemented. The funding strategy for water resource development projects must be reasonable and sufficient to pay the cost of constructing or implementing all of the listed projects.

The recovery and prevention strategy must be implemented if the flow or level in a water body is below, or within 20 years is projected to fall below, its established MFL (Section 373.0421(2)). The strategy must include the development of additional water supplies and other actions to achieve recovery to the established MFL or to prevent the existing flow or level from falling below the established minimum flow or level. It must also include a timetable which will allow for the provision of sufficient water supplies for all existing and projected reasonable-beneficial uses.

The plan must also take into consideration how the water supply and water resource development options serve the public interest or save costs overall by preventing the loss of natural resources or avoiding greater future expenditures for water resource development or water supply development. However, unless adopted by rule, these considerations do not constitute final agency action.

LEC Regional Water Supply Plan Goals and Objectives

Goal. The following provision from the State Comprehensive Plan was adopted as the primary goal of the LEC Regional Water Supply Plan:

Florida shall assure the availability of an adequate supply of water for all competing uses deemed reasonable and beneficial and shall maintain the functions of natural systems and the overall present level of surface and ground water quality. Florida shall improve and restore the quality of waters not presently meeting water quality standards.

This statewide policy is consistent with the water management policies in Chapter 373 and the *Water Supply Policy Document* (SFWMD, 1995).

Objectives. The LEC Advisory Committee also developed several specific objectives and associated strategies for the plan:

1. Protect and enhance the environment including federal, state, and locally identified natural resource areas
2. Protect and conserve the water resources of South Florida to ensure their availability for future generations
3. Provide for the equitable, orderly, cost-effective, and economical development of water supplies to meet South Florida's environmental, agricultural, urban, and industrial needs
4. Improve resource management through the integration of regional and local water supply plans and land use planning

Statutory Requirements. In addition to the above general goals and objectives, results of model simulations were analyzed to determine the ability of proposed projects and actions to achieve other statutory requirements of water supply plans:

- Provide for 1-in-10 year Level of Certainty without causing harm
- Protect water resources from significant harm
- Restore natural systems
- Reserve water needed to protect fish and wildlife and public health and safety

These objectives and statutory requirements were used in the planning process to develop water supply performance measures, resolve competing use issues, and identify recommendations.

Strategies. The plan identifies 12 general strategies to achieve these objectives as follows:

- Implementation of CERP Projects -- All Objectives
- Implementation of water resource and water supply development projects -- All Objectives
- Regional and Subregional Modeling -- All Objectives
- Resource Monitoring and Adaptive Management Process -- All Objectives
- Improve Operations of District Facilities -- All Objectives
- Establish MFLs and Recovery Plans -- Objectives 1 and 2
- Reservations of Water -- Objectives 1 and 2
- Consumptive Use Permitting -- Objectives 2 and 3
- Water Shortage/Supply-Side Management -- Objectives 1, 2 and 3
- District Water Conservation Program - Objectives 2, 3 and 4

- Local Government Assistance --Objective 4
- Alternative Water Supply Funding Program --Objective 4

Approaches to achieving the goal and its associated objectives and plan requirements through implementation of the listed strategies are discussed later in this document.

Regional and Local Components

The design of the *LEC Regional Water Supply Plan* provides guidance for local government and other users (e.g., private utilities, agriculture, etc.) to implement water supply development projects that will use alternative sources to supplement water supplies available from the regional system and provide greater reliability, while operating within limits of the water management system and available fiscal resources. In conjunction with the CERP, the *LEC Regional Water Supply Plan* also supports water resource development activities that are designed to increase the amounts of water that can be stored in, and delivered from, the regional system. These options provide additional water to meet a broad range of environmental, urban, and agricultural needs and will be financed primarily at public expense.

In addition, the *LEC Regional Water Supply Plan* calls for the establishment of boundary conditions that will define the amount of regional system water available within a particular basin or service area. This amount depends on the specific system components in place at any point in time. If recommendations of this plan are implemented within appropriate time frames, sufficient water will be available to meet urban, agricultural and environmental demands through 2020. Although investment in significant public infrastructure will be required to meet the demands of future growth, the costs of developing the needed supplies will be distributed among many users and should not put a significant burden on the region's economy.

The *LEC Regional Water Supply Plan* has been constrained to include options and components that can reasonably be expected to be in place by 2020. These include water supply planning activities, projects within the purview of the Comprehensive Everglades Restoration Plan, additional structural and operational features, and research that may be required within the region to meet long-term water supply needs, achieve environmental restoration goals, and meet appropriate minimum water levels.

RELATIONSHIP TO OTHER PLANS AND PROGRAMS

Comprehensive Everglades Restoration Plan

The C&SF Project was designed in the 1950s based on a 50-year planning horizon. The design was based on forecasts that significantly underestimated the intensity of land uses and future population growth. Increased population and more intense land use have

resulted in higher than anticipated demands on the system's flood protection and water supply capabilities.

C&SF Project and make recommendations to improve the project for multiple benefits, including the restoration of the Everglades system. The final report, then known as the C&SF Project Comprehensive Review Study (Restudy), was submitted to Congress in July 1999. The Restudy was developed by a multiagency, multidisciplinary team which formulated and evaluated alternative comprehensive plans based on computer simulations.

In 1997, the LEC Advisory Committee agreed to have major storage concepts incorporated into the Restudy analysis and as a result, much of the Restudy's recommended course of action is based on concepts that were developed in the LEC water supply planning process. Therefore, the Restudy and the *LEC Regional Water Supply Plan* are closely integrated.

The Restudy includes recommendations for structural and operational changes to the existing C&SF Project that will capture and store much of the water that is now lost to tide, in order to provide enough water in the future for the ecosystem, as well as urban and agricultural users. Water management options developed in the Restudy provide a template and basic infrastructure for Everglades restoration, regional water resources, and local water supply development efforts. The hydrologic management goals developed in the Restudy were also used as a basis to define the various "harm" standards that are used in the Consumptive Use Permitting (CUP) process and to develop MFLs.

The components identified in the Restudy will be refined and implemented in the Comprehensive Everglades Restoration Plan (CERP). The CERP will address modifications to the C&SF Project and restore the South Florida ecosystem while providing for other water related needs of the region. Major features of this plan are shown in **Figure 4**.

Water Preserve Areas Feasibility Study

As part of the overall CERP effort, multipurpose water management areas are planned in Palm Beach, Broward, and Miami-Dade counties between urban areas and the eastern Everglades. These Water Preserve Areas (WPAs) will have the ability to store and treat urban runoff, reduce seepage, provide flood protection, and improve existing wetland areas. shown in **Figure 5**.

The Water Preserve Areas Feasibility Study, scheduled for completion in 2001, is investigating methods to capture and store excess surface waters that are normally released to tide via the C&SF Project canal system. This would be accomplished by backpumping a portion of these surface waters to the WPAs. The benefits associated with the WPAs will include the following:

- Prevent overdrainage of the Everglades and reestablish natural hydropatterns within existing natural areas

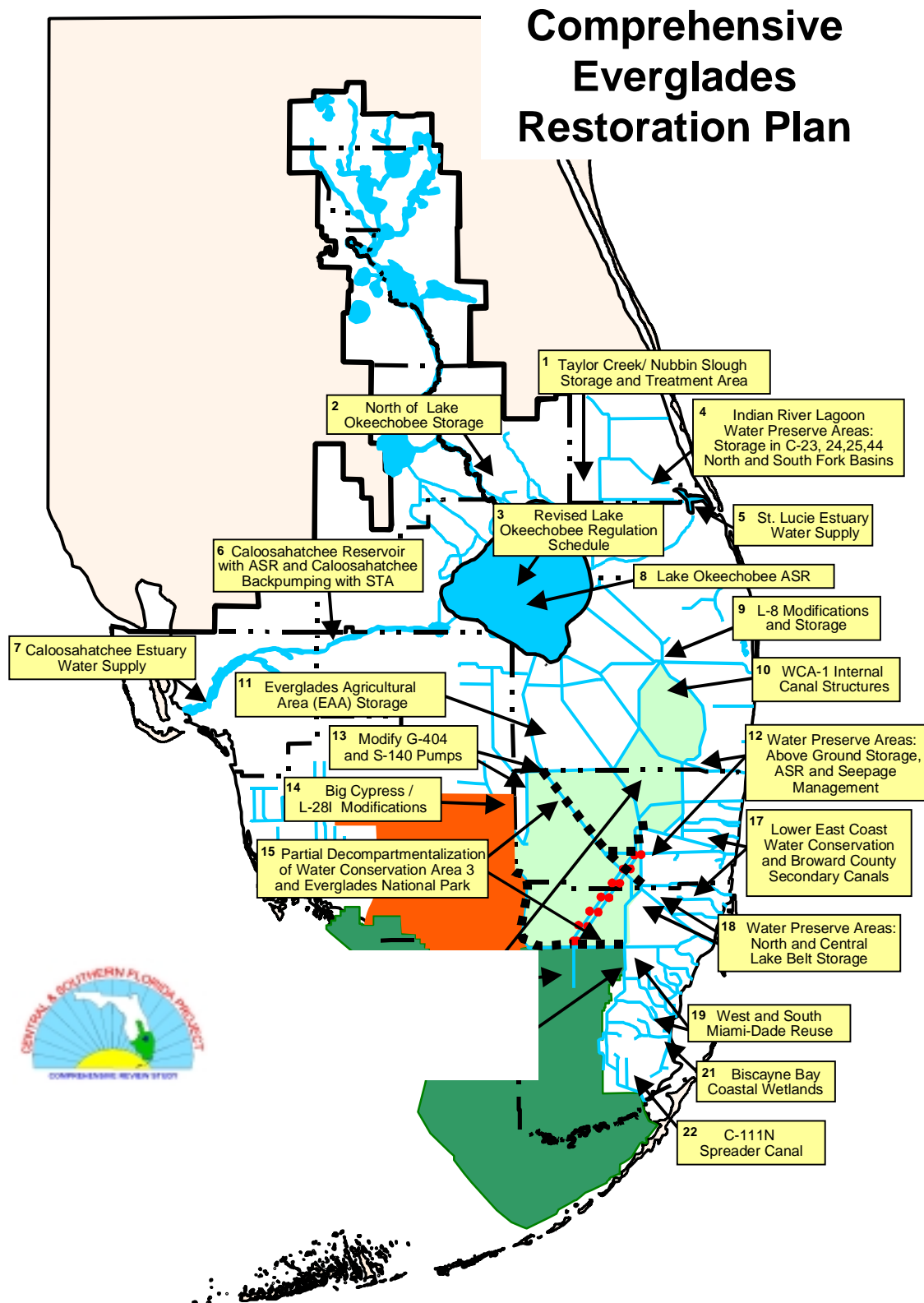


Figure 4. Major Components of the Comprehensive Everglades Restoration Plan.



- Provide for the re-creation of natural storage systems lost due to the impacts of development
- Provide for the increased spatial extent of short hydroperiod wetlands
- Provide a buffer between the Everglades and the urbanized LEC planning area
- Provide for an improved water supply to the LEC planning area
- Maintain flood protection to urban and agricultural lands.

Integrated Water Resource Plans

Other efforts include the development of more location specific, LEC subregional plans that are derived from the overall LEC regional water supply planning effort. These include the *Northern Palm Beach County Comprehensive Water Management Plan*, the *Southeast Palm Beach County Integrated Water Resource Strategy*, the *Broward County Integrated Water Resource Plan*, and the *South Miami-Dade County Integrated Water Resource Plan*. While the planning processes are in different stages of development, efforts will be made to complete these works as quickly as possible. Results of these ongoing subregional efforts were incorporated into the *LEC Regional Water Supply Plan*. .

Other Regional Water Supply Plans

Three other water supply plans, the *Upper East Coast (UEC) Water Supply Plan* (SFWMD, 1998d) and the *Lower West Coast (LWC) Water Supply Plan* (SFWMD, 2000b), and the Kissimmee Water Supply Plan are linked to the *LEC Regional Water Supply Plan* because of Lake Okeechobee, which serves as a common source of water. For example, the Caloosahatchee Basin, Lee County, and the City of Fort Myers rely on water from Lake Okeechobee as a source of supply during dry periods. In addition, the St. Lucie Canal, in the UEC Planning Area, and the Caloosahatchee River, in the LWC Planning Area are outlets for discharge of excess water from Lake Okeechobee when water levels in the lake exceeds its regulation schedule..

The *UEC Water Supply Plan* was the first water supply plan developed under this new statutory direction (SFWMD, 199?). The *LWC Water Supply Plan* was developed at the same time as the *LEC Water Supply Plan* and was completed in 2000. The LEC follows the format established by these efforts, with modifications as needed to address specific features and issues that are unique to the LEC Planning Area. As other water management districts develop their water supply planning initiatives, the SFWMD and the FDEP will work with them to develop a compatible statewide approach. Aspects that may be reviewed for compatibility include application of the 1-in-10 level of certainty goal and development of associated water demands. Any results of such an effort will be reflected in the five-year update to this plan.

Caloosahatchee Water Management Plan

Due to the special problems associated with providing water for irrigation to agricultural interests in the Caloosahatchee River Basin (**Figure 6**) and to public water supply facilities in Lee County, a special management plan was developed for the Caloosahatchee River (SFWMD, 2000d). The Caloosahatchee planning area spans two regional water supply planning areas, the Lower West Coast and the Lower East Coast. The Lower East Coast Interim Plan in 1998 recommended the Caloosahatchee Water Management Plan be developed, in recognition of the relationship of this geographic area and the regional water management system. This plan is scheduled to be completed in 2000 and will address the long-term water supply needs from the regional system, and alternative methods to improve management of available water within the watershed. The relevant conclusions and recommendations of the Caloosahatchee Water Management Plan have been incorporated directly into Chapter 6 of the Lower East Coast Regional Water Supply Plan. The remaining portions of the plan are incorporated by reference. Results of this effort will further refine water supply requirements of the Caloosahatchee Basin.

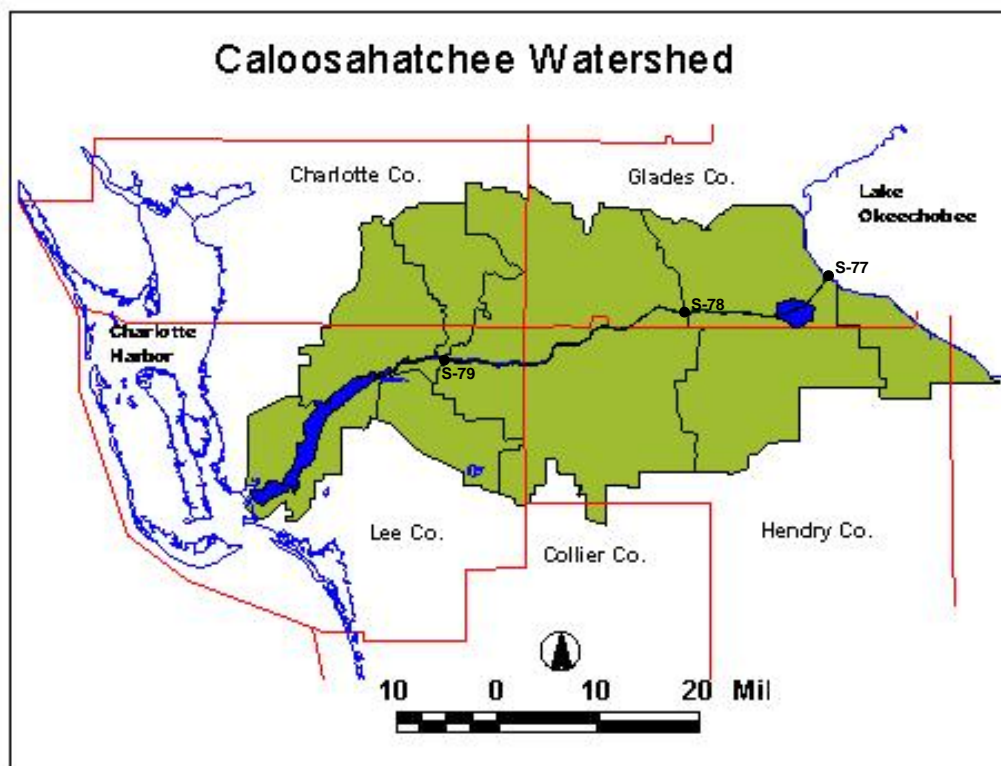


Figure 6. Caloosahatchee Watershed Management Planning Area.

Ecosystem Restoration

In addition to the CERP, restoration is under way in a number of other major South Florida ecosystems and watersheds. Some examples are the Indian River Lagoon/St. Lucie

River, Caloosahatchee River, Loxahatchee Slough and River, Biscayne Bay, Estero Bay, Kissimmee River Basin, Lake Okeechobee, and the Everglades. Everglades restoration projects include improvements to the C-111 Basin, the Everglades Construction Project, Modified Water Deliveries to Everglades National Park, and restoration of Florida Bay. These efforts are designed to avoid degradation and ultimate loss of the most desirable characteristics of these ecosystems and make these systems more closely resemble preimpact conditions.

Rulemaking and Regulation

The District implements two main permitting programs for water resource allocation and protection: the Consumptive Use Permitting (CUP) Program and the Environmental Resource Permitting (ERP) Program. Both require an evaluation of source impacts, including flood protection, wetland protection, water quality, and water supply, which may occur due to an applicant's request. The District also implements a water well construction permitting program.

Consumptive Use Permitting

Chapter 373, F.S., enables and directs the District to regulate the consumptive use of water within its jurisdictional boundaries. Consumptive use is any use of water which reduces the supply from which it is withdrawn or diverted (SFWMD, 1997d). The purpose of the consumptive use regulatory program is to ensure that those water uses permitted by the District meet the three-prong test of 1) being reasonable-beneficial, 2) do not interfere with any presently existing legal uses of water, and 3) being consistent with the public interest. Reasonable assurances must be made that the proposed water use meets this three-prong test on an individual and cumulative basis and by meeting specific water resource protection criteria

Environmental Resource Permitting

The Environmental Resource Permitting (ERP) Program addresses the construction of surface water management systems and dredge and fill activities. Surface water management systems are required for all forms of development ranging from agriculture to commercial to residential. This means that all sites proposed for development that contain impervious surfaces or altered topography ("works"), must provide means to direct storm water to water management areas for water quality treatment, for flood attenuation, to protect wetlands, or mitigate for wetland impacts.

Water Well Construction Permitting

The District implements a well construction permitting program which reviews the location, construction, repair, and abandonment of water wells, and the licensing of water well contractors. As of January 1999, the District had five well construction delegation agreements with local governments. The District intends to pursue delegation agreements with other local governments.

MEETING PRESENT NEEDS AND THE NEEDS OF FUTURE GENERATIONS

An important part of the planning process has been identifying constraints that are needed to protect water supplies while exploring opportunities to maximize use of the resource. This involved extensive public input from the LEC Advisory Committee, whose members represent a variety of disciplines and interests, such as local governments, public water supply utilities, environmental interests, agriculture, and the general public.

Water management in South Florida is multifunctional, reflecting the District's four main areas of responsibility: water supply, flood protection, water quality, and natural systems management. Due to the interrelationships of these areas of responsibility, the water supply plan was coordinated with other planning, restoration and construction efforts in the region. For example, other related studies are addressing freshwater inflows to Biscayne Bay, Everglades National Park, and Florida Bay. The CERP and Everglades Construction Project are addressing needs of the Everglades regional ecosystem. The results of these and other investigations may further enhance regional water supply by increasing surface water availability and improving water quality. This comprehensive, coordinated approach, combined with extensive public input throughout the planning process, ensures that solutions are balanced and consider all aspects of water management.